

roofs being 1,365*l*. They might, however, now be erected for nearly half that cost, as the patent has expired, and increased facilities for manufacture have been provided.

The castings were made by Messrs. Braithwaite, Milner, and Co., and the shed was designed by Mr. John Braithwaite, the engineer to the Eastern Counties Railway, and was erected under his superintendence.

Lightness and strength appear to be attained by the corrugation of iron, inasmuch as a single sheet, so thin that it will not stand alone in an upright position, will, after undergoing the process of corrugation, bear in a vertical position, upwards of 700*lbs*. without bending. Its economy is manifest from the saving it effects in other materials usually used in building, and the roofs already erected appear to have tested its durability. This roof has stood perfectly firm, and is not in the slightest degree altered in form, although of a large span.

Many corrugated roofs have been erected. There is one of 40 feet span and 225 feet in length in the entrance basin at the London Docks; one in the St. Katherine's Docks, and others on the Birmingham, Great Western, and Blackwall railways; they are, it is understood, generally approved.

Mr. Palmer has lately taken out a patent for corrugated cast-iron, which is now being used for erecting a bridge near Swansea, in South Wales. It consists of three arches; two of them 48 feet span, and one of 50 feet span. This corrugation requires no riveting, as the joint is cast on the plate, and the construction of the bridge is stated to be much simplified by the use of iron in that form.

TIMBER—ITS TREATMENT AND USES.

BY JAMES WYLLSON.

(Continued from p. 628.)

237. **FIR AND PINE.**—Near Astoria, in the territory of Oregon, eight miles from the embouchure of the river Columbia, exists a fir measuring 46 feet round and 155 feet high.

238. Another, on the banks of the Umpqua, measures 57 feet in girth, and is 246 feet high.

239. At Rosemeath Castle, Argyleshire, there is, with many others of insignificant dimensions, a silver fir upwards of 125 feet high, and the stem of which, at 6 feet from the ground, measures 7 feet in diameter; another nearly equals this.

240. There has existed on the Inches at Aberdeen, beyond the memory of any living individual, an immense trunk of Deeside fir, girthing perhaps 25 feet at the largest part, and supposed to have been carried down the Dee by some flood, and hauled on to one of these little islands, which are now connected with the main shore.

241. There is a noble tree of Scotch fir growing on the estate of Brude, in Morayshire, 15 feet in circumference.

242. There is a specimen of the Fir tribe worthy of notice in the main street of Yuxford, in Suffolk.

243. At Gordon Castle, a plank from an immense tree, some 7 or 8 feet wide, is kept in the hall, as a sample of Spey or Rothiemurchus growth.

244. Brindley said that Red Riga Deal, or Pine-wood, would endure as long as oak in all situations.

245. The trusses of the old part of the roof of the Basilica of St. Paul, at Rome, which were framed in 816, were sound and good in 1814, say a thousand years afterwards.

246. The large dormitory of the Jacobins' Convent, at Paris, lasted 400 years.

247. Pontey, in his "Forest Pruner," states that some natural grown Scotch fir was known to have been 300 years in the roof of an old castle, and was as fresh and full of sap as timber newly imported from Memel, that in fact part of it was actually wrought up into new furniture.

248. At Fulham Palace, there is in the garden a pinaster upwards of 80 feet high, and exceeding 12 feet in circumference.

249. **ORIENTAL PLANK.**—About three miles from Constantinople, in the valley of Bujak-dere, there is an example which measures 150 feet in circumference, and incloses a space 80 feet round.

250. Pliny mentions a plane tree in Lycia, the hollow trunk of which was sufficiently

commodious to afford a night's retreat to Licinius Mutianus and eighteen followers: the cavity measured 75 feet round, and the summit of the tree was likened to a small forest.

251. Flint, the distinguished geographer, mentions, under the appellation of Sycamore, an example near Marietta, Ohio, measuring 153 feet in diameter; also one which he had seen on the Big Miami river, apparently larger.

252. At Utica, in the State of New York, the hollow trunk of an enormous specien was fitted up and used as a retail shop; afterwards it was carried to New York for exhibition, and is probably that which follows:—

253. A Number of the *New York Traveller* relates that "A Sycamore tree of most singular and extraordinary size has been brought to this city from the western part of this state. The interior is hollowed out, and will comfortably accommodate some forty or fifty persons. It is splendidly furnished as a sitting-room, and contains every article of elegance and usefulness. It has a handsome piano, sofas, glasses, and mirrors of fit and becoming style, and is decorated with pictures and fancy articles." An English journalist thinks it probable that the apartment was obtained in the lengthway of the trunk, the diameter of it affording a sufficiency of height from floor to ceiling.

254. Judge Tucker, of Missouri, fitted up an ample and convenient study from a portion of a hollow trunk, providing it, with roof, stove, &c.: in this instance the building was regularly cylindrical.

255. Clark and others mention very large examples, and Mr. Quin, in his late voyage down the Dapche, refers to one of vast dimensions.

256. Herodotus informs us that Xerxes when he invaded Greece, reposed a whole day under an enormous plane, with the colossal form and pleasant shade of which he was so much delighted that he encircled it with a collar of gold.

257. **POPLAR.**—Sir Thomas Browne, in mentioning the lime tree referred to in Art. 210, describes also a poplar near Harling, as of nearly the same dimensions.

258. In Hampton Court Park there is one 97 feet in height, and the branches of which are so great, springing, as they do, near the ground, that they give to the tree the appearance of a group: it is 14 feet in circumference.

259. **LYX.**—At Gizean, near Montpellier, Decandolle saw one whose trunk near the base measured 6 feet round, and the immensity of which, he says, was truly astonishing. If still in existence, this tree is computed at 4½ centuries old.

260. Another, known to be forty-five years old, was but 7½ inches round; this was taken as the datum from which the age of the preceding was estimated.

261. The writer saw about twelve years ago, in the ruined castle of Rotheay, in the island of Bute, a tree of very strong and abundant growth; many of the stems, from recollection, being as much as 7 or 8 inches in diameter, and some of which had, when twice, penetrated small crevices in the massive walls, and grown there till they rent the latter quite through.

262. See also Art. 221.

263. **OLIVE.**—In the Garden of Olives, at Jerusalem, there are now eight that are believed to be at least 800 years old, there being ancient documentary evidence which proves their having existed anterior to the taking of Jerusalem from the Saracens by the Turks in 1043; according to other authorities, however, all the trees near, during the siege of Jerusalem, were cut down, although most probably their roots, and among them those of these eight, were left undisturbed.

264. The largest mentioned in Italy by Puccini is at Pescio; this tree, according to Mucchettini, must be 700 years old.

265. **CEDAR OF LEBANON.**—Some now growing there are said to be more than 30 feet in circumference, in 1787 they were supposed to be about 600 years old.

266. Pliny mentions its use in the temple of Apollo at Utica.

267. **MAROGANY.**—About October, 1843, Messrs. Broadwood, the piano-forte manufacturers, gave 3,000*l*. for three logs, the produce of a single tree.—*BUILDER*, p. 496.

268. Honduran logs are occasionally as much as 5 feet square.

269. **PAAR.**—There is one growing in the garden of the parsonage at Homelacy, in Herefordshire, which once covered half an acre of ground; now it occupies an amazing space, the branches delving into the ground, taking root, and springing up into fresh trees, after the manner of the banian-tree.

270. **ACACIA.**—In the *European Magazine* for October, 1811, the Rev. James Willm, writing to Sir John Sinclair on this tree, says, "the largest growing in this country is on a bed of pure chalk, in the garden of Whitbury House, near Fordingbridge, belonging to Lord Shaftesbury."

271. **DRAGON-TREE.**—In the island of Teneriffe, in 1822, a tempest laid prostrate a colossal and celebrated specimen of this tree, which measured 45 feet in circumference near the roots, and about 54 or 60 feet in height; and which gigantic dimensions it had attained as early as the fifteenth century. The trunk parted into many branches in a candelabrum-like fashion, each terminated with tufts of leaves; the tree had continued to bear fruit as well as leaves, and to evolve during the dog-days the deep red liquor called *dragon's blood*, which, when dried and become brittle by the atmospheric action, is vended by the apothecaries.

272. **ORANGE.**—It is stated that that in the convent of Santa Sabina at Rome was planted by St. Domenico in 1200; and that of Fondi by St. Thomas d'Aquinas in 1278.

273. **APRICOT.**—A fine specimen, planted in 1714, is growing in the garden of J. J. Deighton, Esq., Hurston; it has a stem 3 feet in circumference, and bears an abundance of fine-flavoured fruit.

274. **ASH.**—One is recorded which was 24 feet in circumference, and another upwards of 40.

275. In Cobham Park, Kent, two trees measured respectively, at 3 feet from the roots, 11 feet 7 inches, and 12 feet 3½ inches in circumference.

276. **MULBERRY-TREE, SHAKESPEARE'S.**—Perhaps some reader of *THE BUILDER* can contribute some information respecting this.

277. **BANIAN.**—See Art. 122, No. 91.

278. **ALDER.**—See Art. 90, No. 84.

Erratum in Art. 181, 5th line.—For "about 450," read "considerably above 300."

NOVEL PROPOSITION TO KEEP DOVER HARBOUR CLEAR OF SHINGLES BY MEANS OF STEAM.

It is manifest that the shingles forming the bar occasionally in front of Dover Harbour would be removed by a continuous torrent of water acting with a force against them exceeding that by which they were brought there, and that the present tidal force cannot be effective by any increase of water, because such force is limited by the tidal height, and by the time of the tide, and is doubly a diminishing force—first, in its advance and descent to the points of its operation, and secondly, by the opposition of the reflux of the tide in its rise after the ebb; and that the force of the efflux water at mere tidal height can never be equal to the influx water at the same height, augmented by winds and currents.

It is also manifest that a force exceeding that which brings the shingles in the front of the harbour's mouth, could be obtained by steam-engines with a system of pipes, stop-cocks, and valves, to be served with the penned water, and could be made to operate successfully in keeping the entrance of the harbour clear; and consequently, that the depth of the outer harbour, now left dry at low water, would be thereby augmented. For example, if the 380 yards of cast-iron pipe, 7 feet in diameter (which, at 1*l*. per ton, cost 10,000*l*.), when taken up, had been laid at a depth of two or three fathoms below low water, in lengths, radiating from a steam-engine power fixed on the south-western pier head, or if pipes at such a depth had been added to the present sluices, and a stream of water forced by steam power through them with a velocity several times greater than that of the tide and currents, there would not have been any cause for the recent memorials to the Warden of the Port and to his assistants.

It has been proved upon the best evidence, that an extension of the south-western pier into three or four fathom water at low water,